

WHAT IS CLAIMED IS:

1. An intravascular stent, comprising:
a plurality of metallic rings expandable in a radial direction, wherein each of the rings is aligned on a common longitudinal axis;
each of the rings having at least one formation therein;
5 at least one flexible link formed of a polymer having a proximal end and a distal end, and a length that spans at least two rings; and
wherein the link has sufficient column strength to axially separate the rings, and wherein the link interconnects the rings at the formations.
2. The intravascular stent of claim 1, wherein the formation includes a structure in the ring selected from the group consisting of a hole, a notch, or a groove.
3. The intravascular stent of claim 1, wherein the formation includes a hole in the ring, and wherein the link passes through the hole.
4. The intravascular stent of claim 3, wherein the link includes spaced apart beads positioned on opposite sides of the hole in the ring.
5. The intravascular stent of claim 3, wherein the link passes through the hole and wraps around the ring.

6. The intravascular stent of claim 1, wherein the formation includes at least one of a notch and a groove and the link engages at least one of the notch and the groove.

7. The intravascular stent of claim 1, wherein the metallic rings include a material selected from the group consisting of stainless steel, titanium, tantalum, platinum, platinum-iridium, nickel-titanium, cobalt-chrome, and alloys thereof.

8. The intravascular stent of claim 1, wherein in the polymer material forming the link is selected from the group of polymers consisting of polyurethanes, polyetherurethanes, polyesterurethanes, silicone, thermoplastic elastomer (C-flex), polyether-amide thermoplastic elastomer (PEBAX), fluoroelastomers, fluorosilicone elastomer, styrene-butadiene rubber, butadiene-styrene rubber, polyisoprene, neoprene (polychloroprene), ethylene-propylene elastomer, chlorosulfonated polyethylene elastomer, butyl rubber, polysulfide elastomer, polyacrylate elastomer, nitrile, rubber, a family of elastomers composed of styrene, ethylene, propylene, aliphatic polycarbonate polyurethane, polymers augmented with antioxidants, polymers augmented with image enhancing materials, polymers having a proton (H⁺) core, polymers augmented with protons (H⁺), butadiene and isoprene (Kraton), polyester thermoplastic elastomer (Hytrel), high molecular weight polyethylene (HMWPE), EVAL, teflon, FEP, and polymethylmethacrylate (PMMA).

9. The intravascular stent of claim 1, wherein the link includes a bioerodable material.

17. An intravascular stent, comprising:
a plurality of flexible cylindrical rings expandable in a radial direction, each of the rings having a first delivery diameter and a second implanted diameter and aligned on a common longitudinal axis;

- 5 wherein some of the rings include a metallic material;
 wherein the rings include a formation;
 a link formed of a polymer and having a proximal end and a distal end, wherein the link engages the rings at the formation; and
 means for affixing the link to the rings.

18. The stent of claim 17, wherein the means for affixing includes wrapping the link around the ring at the formation.

19. The stent of claim 17, wherein the means for affixing includes stops in the link at opposite sides of the formation.

20. The stent of claim 17, wherein the means for affixing includes mechanically interlocking the link to the ring at the formation.

21. The stent of claim 17, wherein the means for affixing includes heating the link to form a first polymeric bead, threading the link through the formation, and heating the link to form a second polymeric bead thereby holding the ring between the beads.

100221 966001

[illegible]

5

26. The stent of claim 23, wherein the link and the ring at the notches are at least partially encapsulated in a polymer.

27. The stent of claim 23, wherein the link has a smaller thickness than a thickness of the ring.

28. The stent of claim 23, wherein the ring includes an exterior surface and an interior surface, and the link includes increased mass that engages the notch at one of the exterior surface and the interior surface.

29. The stent of claim 23, wherein the link is tied to the ring at the notch.

30. A method for providing an intravascular stent, comprising:
providing a plurality of metallic rings expandable in a radial direction;
creating a formation on each ring;
aligning the rings along on a common longitudinal axis;
5 providing at least one flexible link formed of a polymer having sufficient column strength to axially separate the rings, and having a length that spans at least two rings; and
interconnecting the rings with the flexible link at the formations.

31. The method of claim 30, wherein the step of interconnecting the rings includes at least one of welding the link to the ring at the formation, wrapping the link around the ring at the formation, passing the link through the formation, bonding the link to the formation, and at least partially encapsulating the link to the ring at the
5 formation with a polymer.

32. The method of claim 30, wherein the method further comprises:
arranging a plurality of pre-cut rings on a mandrel;
heating polymer pellets into a melt;
extruding the melt; and
5 guiding the melt over the rings to form the link.

33. The method of claim 30, wherein the method further comprises laser
cutting a pattern into the stent.

34. The method of claim 32, wherein the extruded polymer link is spun onto
a spool.

35. The method of claim 32, wherein the method further comprises
providing a polymer extruder apparatus including a hopper for receiving biocompatible
polymer pellets, providing a plasticating single screw extruder, and extruding the
polymer to form the link.

36. A method for fabricating a flexible intravascular stent, comprising:
providing a metallic tube;
creating a formation on the tube;
cutting the metallic tube to form a plurality of rings;
5 arranging the rings on a mandrel;

forming a polymer link by injection molding a polymer onto the plurality of
rings; and

37. The method of claim 36, wherein the method further comprises at least one of laser cutting, chemically etching, and laser welding the links.

[illegible]